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EXAMINER	
ARCHER, CHRISTOPHER B	
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2432	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/560,679	VAN DER VEEN ET AL.	
	Examiner	Art Unit	
	CHRISTOPHER B. ARCHER	2432	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *1* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26 and 28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. This communication is in response to applicant's amendment filed on 02/26/2009. Claims 1-26 and 28 remain pending.

2. Examiner acknowledges that claim 27 has been cancelled.

3. Examiner withdraws U.S.C. 101 rejection of claim 28.

4. Applicant's arguments filed 02/26/2009 have been fully considered but they are not persuasive.

5. **Regarding claim 1,** the applicant states that Lemma does not show "mixing at least one section of said media signal with a noise signal for providing a modified media signal."

6. The examiner disagrees, as **Lemma page 1089** shows a section of media $x_b[n]$ being mixed with a noise signal w[n]. This combination is then added to the data x[n]

7. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

8. **Regarding claims 3 and 4,** it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to encode the additional information in the

frequency or time domain, as taught by Moskowitz, as these are both common ways to encode additional information inside of digital data. **See Moskowitz column 7, lines 1-2.**

9. **Regarding claims 10 and 22,** it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to add an unscaled bit-noise, as described in Zhao, as this is a common bit-embedding process. **See Zhao page 399, 3.2.**

10. **Regarding claims 12 and 14,** it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to analyze a signal for the selection of noisy data, as described in Zhao, in order to calculate a section of the signal capable of carrying additional information. **See Zhao page 398, column 1.**

11. **Regarding claims 23 and 26,** it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to analyze a signal for the selection of noisy data and provide noisy sections in a media signal, as described in Zhao, in order to calculate a section of a signal capable of carrying additional information and encode that information into the original signal. **See Zhao page 398, column 1, paragraph 2 and page 400, 3.2.2.**

12. **Regarding claims 13, 24, and 25,** it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to include a soft switch, as disclosed by Strolle, in order to reduce high frequencies prior to their being mixed with a carrier signal. This helps to reduce the watermark's detectability. **See Strolle, column 13, lines 7-16.**

Claim Rejections - 35 USC § 102

13. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

14. Claims 1, 2, 5-9, 11, 15-18, 20 and 21 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Lemma, Negash Aweke: *A Temporal Doman Audio Watermarking Technique* IEEE TRANSACTIONS ON SIGNAL PROCESSING, IEEE, INC. NEW YORK, US, vol. 51, no. 4, April 2003 (2003-04), hereafter referred to as Lemma.

Regarding claim 1:

Lemma discloses "Method of embedding additional data (w) in a media signal (x) comprising the steps of:

obtaining a media signal (x), (step 48),

mixing at least one section of said media signal (x) with a noise signal (n; n_s; δn) for providing a modified media signal (x+n; x+n_s; x+δn), (step 54), and

combining said additional data (w) with said modified media signal, (step 56) for providing a first host modifying media signal (m_w)"

as **[(Lemma page 1089, II and Fig. 1) obtains the media signal x[n], mixes a part of the media signal with a noise signal to obtain a modified media signal $x_b[n]$, and finally combines the media signal x[n] with the additional data w[n]x_b[n]]**.

Regarding claim 2:

Lemma further discloses "Method according to claim 1, wherein the step of combining is performed by multiplying said modified media signal with said additional

data (w)" as **[(Lemma page 1089, II and Fig. 1) shows the modified media signal x_b being multiplied by the additional data w]**.

Regarding claim 5:

Lemma further discloses "Method according to claim 1, further comprising the step of shaping said noise signal using a first signal shaping function (M1) based on a model of human perception, (step 52), for providing a shaped noise signal to be used for providing the modified media signal ($x+n_s$)" as **[(Lemma page 1088, column 1, I Paragraph 2 and page 1089 II) shows that watermarking techniques shaped to exploit the insensitivity of the human ear are common in the art]**.

Regarding claim 6:

Lemma further discloses "Method according to claim 1, further including the step of shaping said first host modifying media signal (m_w) with a second signal shaping function (M2) based on a model of human perception, (step 58), for providing a second host modifying media signal (m_{ws})" as **[(Lemma page 1089, column 1, II and Figure 1) shows the first host modifying media signal being combined with the original media signal x[n] altered by the HAS. The HAS signal is then combined with the host modifying media signal $w[n]x_b[n]$]**.

Regarding claim 7: Lemma further discloses "Method according to claim 1, further including the step of adding a host modifying media signal (m_w; m_{ws}) to said

modified media signal (step 60)" as **[(Lemma page 1089, II formula (2)) shows the modified media signal $\alpha w[n]x_b[n]$ being added to a host modifying media signal $x_b[n]$]**.

Regarding claim 8:

Lemma further discloses "Method according to claim 1, further including the step of adding a host modifying media signal (m_w; m_{ws}) to said media signal" as **[(Lemma page 1089, II formula (1) and Fig. 1) shows the modified media signal $\alpha w[n]x_b[n]$ being added to a host media signal $x[n]$]**.

Regarding claim 9:

Lemma further discloses "Method according to claim 1, further comprising the step of scaling said noise signal using a scaling factor δ prior to the step of mixing for providing a scaled noise signal to be used for providing the modified media signal ($x+\delta n$)" as **[(Lemma page 1089, II and Fig. 1) shows the noise signal $w[n]x_b[n]$ being scaled by α to create $\alpha w[n]x_b[n]$, before being added to the original media signal $x[n]$]**.

Regarding claim 11: Lemma further discloses "Method according to claim 1, wherein said additional data is a watermark (w)" as **[(Lemma page 1089, II) shows that the additional data embedded into the media signal is a watermark]**.

Regarding claim 15:

Lemma further discloses "Device (10) for embedding additional data (w) in a media signal (x) comprising:

a first adding unit (12) for mixing at least one section of said media signal (x) with a noise signal (n; n_s; δn) in order to provide a modified media signal (x+n; $x+n_s$; x+δn), and

a combiner unit (14) for combining said additional data (w) with said modified media signal for providing a first host modifying media signal (m_w)"

as **[(Lemma page 1089, II and Fig. 1) obtains the media signal x[n], mixes a part of the media signal with a noise signal to obtain a modified media signal $x_b[n]$, and finally combines the media signal x[n] with the additional data $w[n]x_b[n]$]**.

Regarding claim 16:

Lemma further discloses "Device according to claim 15, wherein the combiner unit is arranged to combine said additional data with said modified media signal through multiplying said modified media signal with said additional data" as **[(Lemma page 1089, II formula (1) and Figure 1) shows the additional data w[n] being multiplied by the modified media signal $x_b[n]$ to produce $w[n]x_b[n]$]**.

Regarding claim 17:

Lemma further discloses "Device according to claim 15, further comprising a first signal shaping unit (40) arranged to shape said noise signal using a first signal shaping

function (M1) based on a model (P) of human perception, for providing a shaped noise signal to be used for providing the modified media signal" as **[(Lemma page 1088, column 1, 1 Paragraph 2 and page 1089 II) shows that watermarking techniques shaped to exploit the insensitivity of the human ear are common in the art]**.

Regarding claim 18:

Lemma further discloses "Device according to claim 15, further comprising a second signal shaping unit (44) arranged to shape said first host modifying media signal with a second signal shaping function (M2) based on a model (P) of human perception, for providing a second host modifying media signal" as **[(Lemma page 1089, column 1, II and Figure 1) shows the first host modifying media signal being combined with the original media signal x[n] altered by the HAS unit. The HAS modified signal is then combined with the host modifying media signal $w[n]x_b[n]$]**.

Regarding claim 20:

Lemma further discloses "Device according to claim 15, further comprising a second adding unit (36) arranged to add a host modifying media signal to said media signal (x)" as **[(Lemma page 1089, II formula (1) and Figure 1) shows the host modifying media signal $w[n]x_b[n]$ being added to the original media signal x[n]]**.

Regarding claim 21: Lemma further discloses "Device according to claim 15, further comprising a scaling unit (62) arranged to scale down said noise signal (δn) prior

to mixing with said media signal (x) for providing a scaled noise signal to be used for providing the modified media signal" as **[(Lemma page 1089, II and Fig. 1) shows the noise signal $w[n]x_b[n]$ being scaled by α to create $\alpha w[n]x_b[n]$, before being added to the original media signal $x[n]$]**.

Claim Rejections - 35 USC § 103

15. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

16. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lemma as applied to claim 2 above in view of Moskowitz et al. (US Patent No. 5,687,236), hereafter referred to as Moskowitz.

Regarding claim 3:

Lemma discloses "Method according to claim 2," but fails to explicitly disclose "wherein the step of multiplying is performed in the time domain."

However, Moskowitz discloses "wherein the step of multiplying is performed in the time domain" as **[(Moskowitz column 7, lines 1-49) shows that encoding information into the frequency domain is common in the art. If information is encoded in the frequency domain, the information is multiplied in the time domain]**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to encode the additional information in the frequency or time domain, as taught by Moskowitz, as these are both common ways to encode additional information inside of digital data.

17. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lemma as applied to claim 2 above in view of Moskowitz.

Regarding claim 4:

Moskowitz further discloses "Method according to claim 2, wherein the step of multiplying is performed in the frequency domain" as **[(Moskowitz column 7, lines 1-49) shows that encoding information in the time domain is common in the art. If the information is encoded in the time domain, the information is multiplied in the frequency domain]**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to encode the additional information in the frequency or time domain, as taught by Moskowitz, as these are both common ways to encode additional information inside of digital data.

18. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lemma as applied to claim 9 above in view of Zhao, Jian: *A Generic Digital Watermarking Model* COMPUTERS AND GRAPHICS, PERMAGON PRESS LTD. OXFORD, GB, vol. 22, no 4, 1 August 1998 (1998-01), hereafter referred to as Zhao.

Regarding claim 10:

Lemma discloses "Method according to claim 9," but fails to explicitly disclose "further including the step of adding an unscaled noise signal to said first host modifying media signal."

However, Zhao discloses "further including the step of adding an unscaled noise signal to said first host modifying media signal" as **[(Zhao pages 399-400, sections 3.1.8- 3.2) shows an unscaled bit-noise being added to the bit carrier]**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to add an unscaled bit-noise, as described in Zhao, as this is a common bit-embedding process.

19. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lemma as applied to claim 1 above in view of Zhao.

Regarding claim 12:

Zhao further discloses "Method according to claim 1, further comprising the step of analysing (A) the media signal and providing, for different sections of the media signal, a section of said modified media signal (x+n) or a section of said media signal (x) in dependence of the analysis for combining with said additional data" as **[(Zhao page 398 paragraph 2 shows a signal being analyzed for the selection of noisy data. (Zhao page 400, 3.2.2) shows a noise generator that provides noisy sections in a media signal]**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to analyze a signal for the selection of noisy data, as described in Zhao, in order to calculate a section of the signal capable of carrying additional information.

20. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lemma as applied to claim 21 above in view of Zhao.

Regarding claim 22:

Lemma discloses "Device according to claim 21," but fails to explicitly disclose "further comprising a third adding unit (64) arranged to add an unscaled noise signal to said first host modifying media signal."

However, Zhao discloses "further comprising a third adding unit (64) arranged to add an unscaled noise signal to said first host modifying media signal" as **[(Zhao pages 399-400, sections 3.1.8- 3.2) shows an unscaled bit-noise being added to the bit carrier]**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to add an unscaled bit-noise, as described in Zhao, as this is a common bit-embedding process.

21. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lemma as applied to claim 15 above in view of Zhao.

Regarding claim 23:

Zhao further discloses "Device according to claim 15, further comprising an analysing unit (66) arranged to analyse said media signal (x) and control, for different sections of the media signal, the provision of a section of a modified media signal or a section of said media signal to the combiner unit (14) for combining with said additional data in dependence of the analysis (A)," as **[(Zhao page 398 paragraph 2 shows a**

signal being analyzed for the selection of noisy data. (Zhao page 400, 3.2.2) shows a noise generator that provides noisy sections in a media signal].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to analyze a signal for the selection of noisy data and provide noisy sections in a media signal, as described in Zhao, in order to calculate a section of a signal capable of carrying additional information and encode that information into the original signal.

Regarding claim 24:

Zhao further discloses "Device according to claim 23, further comprising at least one first switch (68) arranged to connect said media signal or said modified media signal to the combiner unit under the control of the analysing unit," as **[(Zhao page 398 paragraph 2) shows a signal being analyzed for the selection of noisy data. (Zhao page 400, 3.2.2-3.2.3 and Figure 1) shows a noise generator and bit-carrier modifiers. The general formulas for computing bit-carrier modifiers contain signals that already have a noise section $C_i' = c_i + a_i^* s_i$ and signals that have added noise components $C_i' = c_i^*(1 + a_i^* s_i)$]**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to include a soft switch, as disclosed by Strolle, in order to reduce high frequencies prior to their being mixed with a carrier signal. This helps to reduce the watermark's detectability.

22. Claims 14 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lemma in view of Zhao.

Regarding claim 14:

Lemma and Zhao disclose "Method of embedding additional data (w) in a media signal (x) comprising the steps of: obtaining a media signal (x), analysing (A) the media signal, mixing at least one section of said media signal (x) with a noise signal (n) for providing a modified media signal (x+n), and combining, for different sections of the media signal, said additional data (w) with said modified media signal (x+n) or with said original media signal (x) in dependence of the analysis" as **[see rejection for claim 12]**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to analyze a signal for the selection of noisy data, as described in Zhao, in order to calculate a section of the signal capable of carrying additional information.

Regarding claim 26:

Lemma and Zhao disclose "Device (10) for embedding additional data (w) in a media signal (x) comprising: a first adding unit (12) for mixing at least one section of said media signal (x) with a noise signal (n; n_s; δn) in order to provide a modified media signal (x+n; x+n_s; x+δn), a combiner unit (14) for combining said additional data (w) with said modified media signal (x+n) or with said media signal (x) for providing a first host modifying signal, and an analysing unit (66) arranged to analyse said media signal (x) and control, for different sections of the media signal, the provision of said modified

media signal or said media signal to the combiner unit (14) in dependence of the analysis (A)" as **[see rejection for claim 23]**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to analyze a signal for the selection of noisy data and provide noisy sections in a media signal, as described in Zhao, in order to calculate a section of a signal capable of carrying additional information and encode that information into the original signal.

23. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lemma in view of Zhao as applied to claim 12 above, and further in view of Strolle et al. (US Patent No. 6,104,863), hereafter referred to as Strolle.

Regarding claim 13:

Lemma and Zhao disclose "Method according to claim 12," but fail to explicitly disclose "further comprising the step of switching between said media signal and a modified media signal for combining with said additional data, wherein the step of switching preferably is a graceful switching."

However, Strolle discloses "further comprising the step of switching between said media signal and a modified media signal for combining with said additional data, wherein the step of switching preferably is a graceful switching" as **[(Strolle column 9 lines 21- 49) shows that soft switches are common for encoding and decoding of digital media information]**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to include a soft switch, as disclosed by Strolle, in order to reduce high frequencies prior to their being mixed with a carrier signal. This helps to reduce the watermark's detectability.

24. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lemma in view of Zhao as applied to claim 24 above, and further in view of Strolle.

Regarding claim 25:

Lemma and Zhao disclose "Device according to claim 24," but fail to explicitly disclose "wherein there is a second switch (70) controlled by the analysing unit, wherein the first switch connects said modified media signal to the combiner unit, the second switch connects said media signal to the combiner unit and the switches are arranged to switch gracefully from one state to the other."

However, Strolle discloses "wherein there is a second switch (70) controlled by the analysing unit, wherein the first switch connects said modified media signal to the combiner unit, the second switch connects said media signal to the combiner unit and the switches are arranged to switch gracefully from one state to the other" as **[(Strolle column 9 lines 21- 49) shows that soft switches are common for encoding and decoding of digital media information]**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lemma to include a soft switch, as disclosed by Strolle, in order to

reduce high frequencies prior to their being mixed with a carrier signal. This helps to reduce the watermark's detectability.

Conclusion

25. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER B. ARCHER whose telephone number is (571) 270-7308. The examiner can normally be reached on M-F 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on (571) 272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CHRISTOPHER B ARCHER/
Examiner, Art Unit 2432

/Gilberto Barron Jr./
Supervisory Patent Examiner, Art Unit 2432